

Patent claims

1. Method for determination of patient-related information regarding the position and orientation of magnetic resonance tomographic slice image exposures of a patient, with the following method steps:
 - production of initial MR overview exposures (UA) of the body of the patient,
 - individualization of a predetermined, parameterized anatomical body model (NM) using the initial MR overview exposures (UA),
 - determination of the patient-related information about the position and orientation of the subsequent slice image exposures on the basis of the relative position of the slice image exposures with regard to the individualized body model (IM).
- 15 2. Method according to claim 1, whereby the initial MR overview exposures (UA) are produced in a standardized arrangement.
3. Method according to claim 1 or 2, whereby the initial MR overview exposures (UA) comprise cross-section exposures.
- 20 4. Method according to any of the claims 1 through 3, whereby a plurality of cross-sections with an interval of approximately 50 cm or less (advantageously with an interval of below 15 cm) are produced as initial MR overview exposures (UA).
- 25 5. Method according to any of the claims 1 through 4, whereby a quality of the achieved individualization is automatically determined on the basis of deviations (determined in the individualization of the body model (NM)) of the individualized body model (IM) from structures detectable in the MR overview exposures
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and based thereupon it is automatically determined whether and with which positions and orientations additional MR overview exposures are produced.

6. Method according to any of the claims 1 through 5, whereby the model parameters adjustable in an individualization comprise at least one translation parameter, one rotation parameter and one scaling parameter of the entire body model as well as parameters that describe a spatial position and form of predetermined important body parts.
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- 10 7. Method according to any of the claims 1 through 6, whereby a linguistic designation of a patient position is determined using parameter values of the individualized body model (IM).
- 15 8. Method according to any of the claims 1 through 7, whereby a description of a patient position that is input by an operator is monitored with the aid of parameter values of the individualized body model (IM).
- 20 9. Method according to any of the claims 1 through 8, whereby the patient-related information about the position and orientation of slice image exposures are optically output to an operator in a linguistic and/or graphical form with the individualized body model (IM).
- 25 10. Method according to any of the claims 1 through 9, whereby a body weight of the patient is calculated with the aid of the individualized body model (IM).
11. Method according to any of the claims 1 through 10, whereby a positioning of the patient in the MR apparatus for examination of a desired body region is implemented with the aid of the individualized body model (IM).
- 30 12. Method according to any of the claims 1 through 11, whereby a body model (IM) individualized in the first MR examination is stored, and a positioning

of the patient in a further MR examination is implemented with the aid of this individualized body model (IM).

13. Computer program product which can be directly loaded into a storage of a
5 programmable control device (5) of a magnetic resonance tomography apparatus (1), with program code means in order to execute all steps of a method according to any of the claims 1 through 12 when the program product is executed on the control device (5).

10 14. Control device (5) for operation of a magnetic resonance tomography apparatus (1) with

- a control interface (8) for activation of the magnetic resonance tomography apparatus (1) for measurement of a number of slice image exposures corresponding to scan parameters predetermined by the control device,
- 15 an image data interface (9) for acquisition of image data acquired by means of the magnetic resonance tomography apparatus (1),
- an overview image determination unit (13) in order to activate the magnetic resonance tomography apparatus (1) for measurement of a number of initial MR overview exposures of the body of the patient,
- 20 a control device (6) with an anatomically parameterized body model (NM) whose geometry is variable via alteration of specific parameters,
- an individualization unit (14) in order to individualize the body model (NM) using the measured initial MR overview exposures,
- a localization unit (17) which respectively determines the relative position 25 of the appertaining slice image exposures regarding the individualized body model (IM) for determination of patient-related information regarding the position and orientation of subsequently-created slice image exposures.

15. Magnetic resonance tomography apparatus (1) for measurement of slice image data of an examination subject, comprising a control device (5) according to
30 claim 4.